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Environmental Protection Department
Operations and Regulatory Affairs Division

Contingency Plan
For Site 300
Waste Accumulation Area(s)

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1. INTRODUCTION

This Contingency Plan identifies personnel responsibilities, emergency equipment, and required actions necessary to mitigate potential incidents at the Waste Accumulation Area(s) (WAA)(s) located at the Lawrence Livermore National Laboratory (LLNL) Experimental Test Site 300 (Site 300) as shown in **Figure 1**. This Plan is designed to prepare personnel to minimize hazards to human health and the environment from fires, explosions, or any sudden or nonsudden release of hazardous, radioactive, or mixed waste constituents to the air, ground surface, or water from waste stored in the WAA(s).

The LLNL Site 300 currently has one WAA. The location of the WAA is shown in **Figure 2** and identified in **Table 1**. As programmatic needs change, it may become necessary to establish additional WAAs at Site 300. The WAA is a small, regularly monitored storage area where waste can be accumulated and stored temporarily. Hazardous and mixed waste can be stored or accumulated in a WAA for up to 90 days, after which it must be transferred to a Department of Toxic Substances Control (DTSC) authorized onsite treatment or storage facility or an authorized offsite treatment, storage, or disposal facility (TSDF). The onsite TSDFs authorized by DTSC are managed by the Radioactive and Hazardous Waste Management (RHWM) Division and by the Chemistry and Materials Science Directorate (CMS) at Site 300.

Hazardous, radioactive, or mixed waste is referred to as "waste" in this document. Radioactive waste has been included in this Plan as a "Best Management Practice" to aid in response, where appropriate. However, radioactive waste is not regulated by DTSC under this Plan.

This Contingency Plan is divided into two parts:

1. The first part, referred to as the "General Plan," is general information that is applicable to the existing and any subsequent WAAs. The General Plan includes Sections 1–7 and Appendices A–C.

2. The second part, referred to as the "Site-Specific Plan," contains site-specific information for the WAA(s). Site-specific plans are included in Appendix D.

A copy of the Contingency Plan (including the site-specific plans) will be distributed to regulatory agencies and to public service organizations, such as local fire departments and hospitals that may be called on to provide emergency services. A copy of the General Plan with the appropriate site-specific plan will be located at the WAA(s), so it can be used in the case of an emergency.

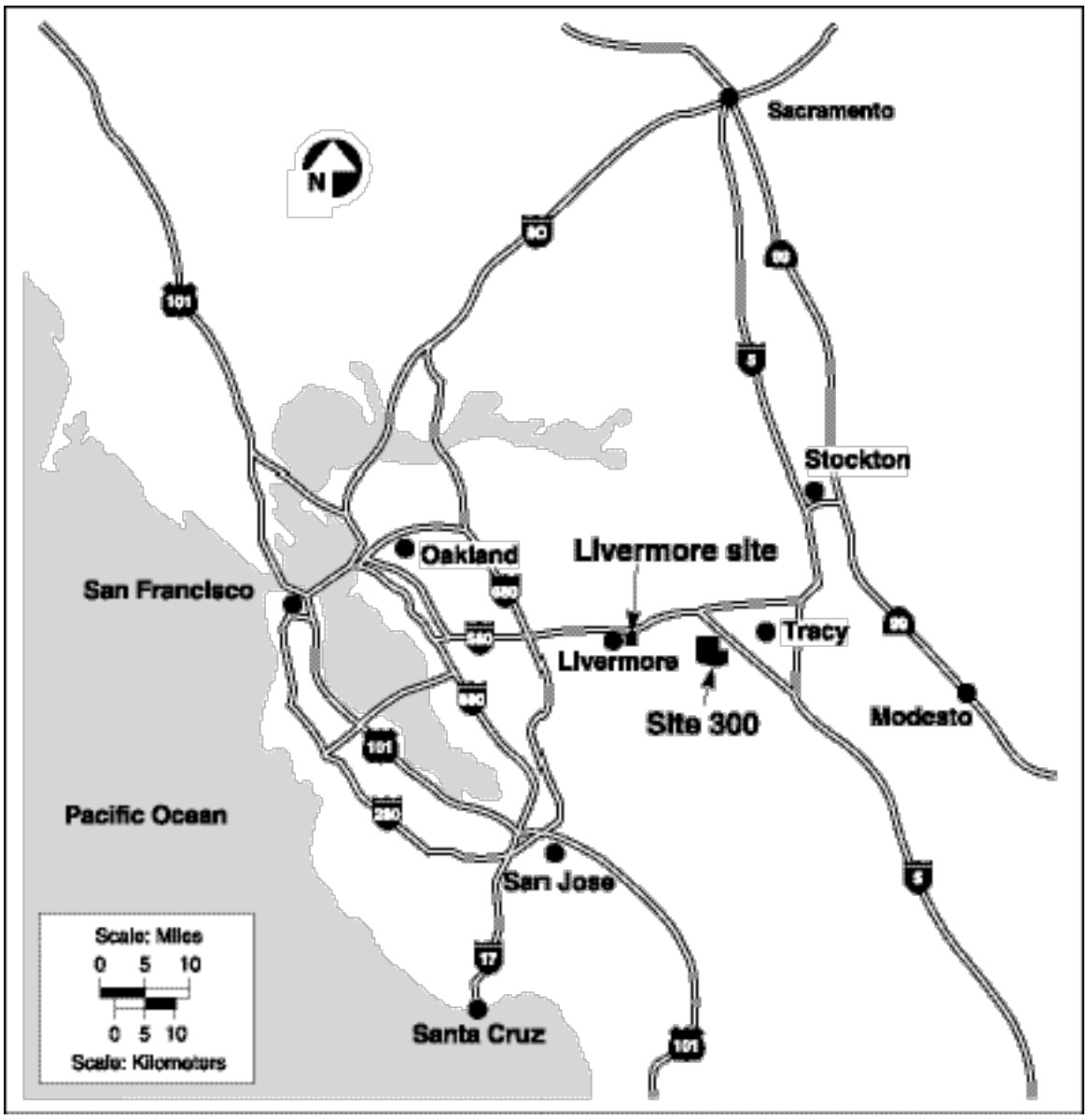

Figure 1. Locations of LLNL Main Site and Site 300

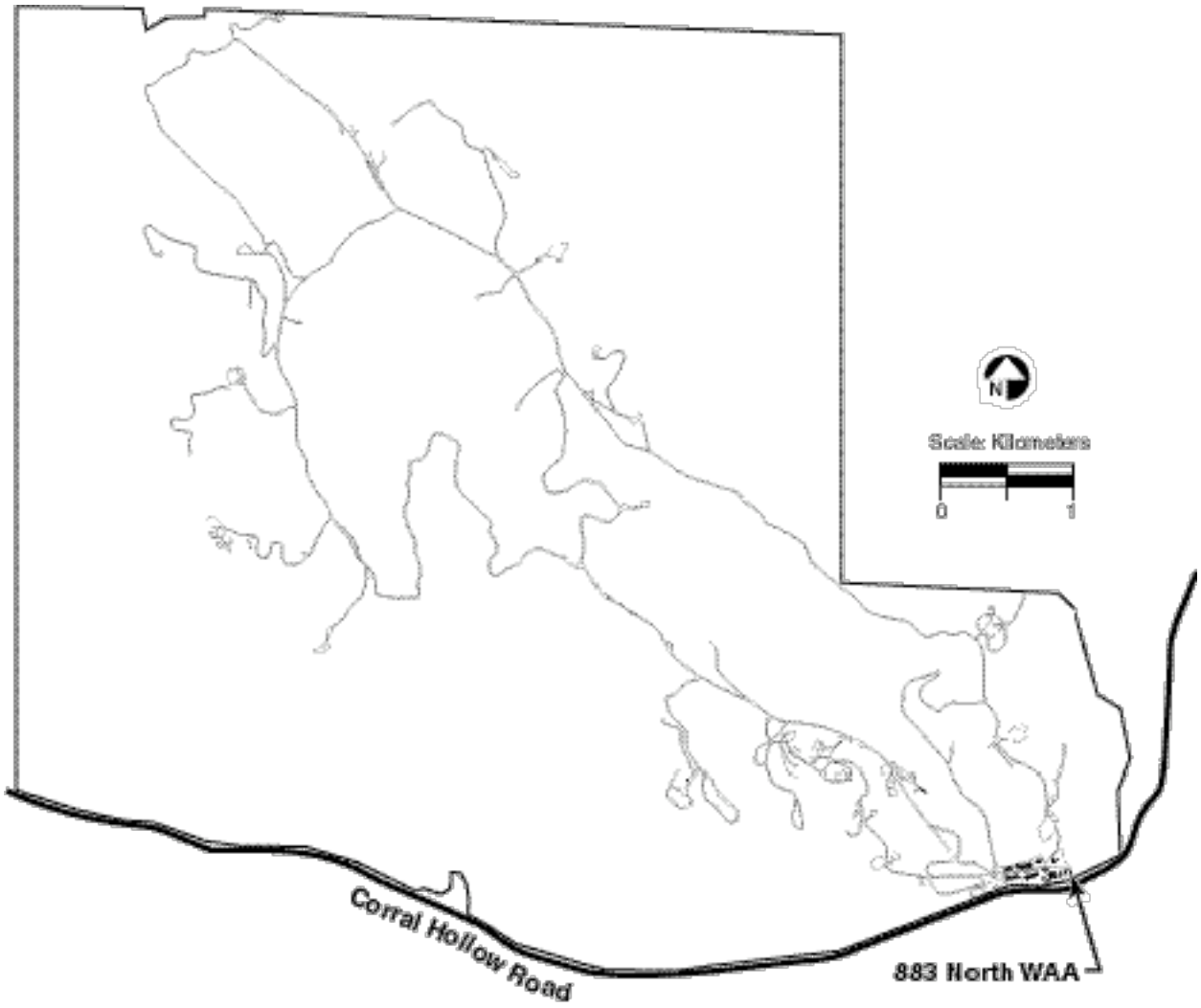

Figure 2. Waste Accumulation Area(s) at Site 300

Table 1. Waste Accumulation Area(s) at LLNL Site 300

WAA No.	Program	ES&H Team	Description	Appendix No.
883N	RHWM	1	A 40 feet x 54 feet covered area with an epoxy-coated concrete floor and berm, surrounded by a locked chain link fence occupying the north end of Building 883, and a 25 feet x 40 feet uncovered outdoor area west of the covered portion of the WAA.	D-1

1.1 Scope of the Plan

This Contingency Plan identifies personnel responsibilities, emergency equipment, and required actions necessary to mitigate incidents within the WAA(s). It is intended to prepare personnel for potential emergencies.

This Contingency Plan specifically defines the types of incidents that can be handled by trained LLNL personnel and those that must be mitigated by the LLNL Emergency Management Division (referred to hereafter as the LLNL Fire Department). This is accomplished by classifying the particular incident in accordance with the levels described below in Section 1.2.

1.2 Implementation of the Plan

Provisions of this Contingency Plan are intended to minimize hazards to human health and the environment from fires, explosion, or any release of waste to the air, soil, or surface water from waste stored in the WAA(s). This Contingency Plan is implemented whenever a large incident occurs.

Incidents are characterized as either small or large. An incident is characterized as small if it meets all of the following conditions:

- The release is of a material whose nature and potential hazards are known, and
- The release presents no actual or potential threat to human health or the environment, and
- The incident results in no injury or in a minor injury requiring simple first aid.

Small incidents are handled routinely by trained LLNL personnel with some support or assistance from the Hazards Control Department or the Environmental Protection Department (EPD). The EPD Environmental Operations Group (EOG) Analyst is notified in the event of any small incident during normal working hours. The EPD Environmental Duty Officer (EDO) is notified during off-hours.

The LLNL Emergency Dispatch Center serves as the Alameda County Regional Emergency Communication Center. The Alameda County Regional Emergency Communication Center is contacted when a large incident occurs. When at Site 300 or the LLNL Main Site, dial extension 911 for the Alameda County Regional

Emergency Communication Center, or dial (925) 447-6880 if reporting from an off-site phone. If using a handheld radio while at Site 300, contact the Alameda County Regional Emergency Communication Center through the Central Alarm Station (CAS) by using the call sign MIKE on the radio.

An incident is considered large if any one or more of the following conditions occur:

- A fire or explosion occurs, or
- Personnel regard the incident as unsafe to manage without the aid of the LLNL Fire Department, or
- Hazardous, radioactive, or mixed waste with hazards unfamiliar to personnel is released, or
- Hazardous, radioactive, or mixed waste that cannot be identified is released, or
- There are injuries that require medical treatment other than simple first aid as directed by Health Services, or
- The incident requires evacuation of a building or facility, or
- Hazardous, radioactive, or mixed waste migrates into a storm drain.

1.3 Maintenance of the Plan

1.3.1 Copies of the Contingency Plan

A copy of the General Plan and the appropriate site-specific plan(s) will be maintained onsite at the WAA(s) and in the WAA Coordinator's files.

A copy of the General Plan with the site-specific plan(s) shall be maintained onsite at:

- LLNL Fire Department (Building 890, Site 300 and Building 323, LLNL Main Site)
- Environmental Operations Group (EOG) (Trailer 5475 [T-5475], LLNL Main Site)
- Permits and Regulatory Affairs Group (T-5475, LLNL Main Site)
- Water Guidance and Monitoring Group (T-5475, LLNL Main Site)
- Radioactive and Hazardous Waste Management (Trailer 5979, LLNL Main Site)
- Radioactive and Hazardous Waste Management (Building 874, Site 300)
- Emergency Management Center (Building 313, LLNL Main Site)
- LLNL Health Services Department (Building 889, Site 300 and Building 663, LLNL Main Site)
- Safeguards and Security Department, Assurance Office (Building 274, LLNL Main Site)
- Hazards Control Department (Building 253, LLNL Main Site)
- Site 300 Manager's Office (Building 871 [B-871], Site 300)
- Site 300 EOG Environmental Analyst's Office (B-871, Site 300)
- Environment, Safety and Health (ES&H) Team 1 Site 300 Deputy Team Leader's Office (B-871, Site 300)
- Central Alarm Station (CAS) (Building 881, Site 300)

A copy of the General Plan with the site-specific plan(s) shall be provided to participants in the Twin Valley Mutual Aid Agreement (see Section 3).

1.3.2 Revisions to the Contingency Plan

This Contingency Plan shall be reviewed periodically by applicable programs/departments, Hazards Control, and EPD. The EOG Analyst shall be informed immediately by the responsible program/department if any of the following occur:

- The Contingency Plan, if properly followed, fails in an emergency, or
- There is a change in WAA design, construction, operation, or maintenance in a way that increases the potential for fires, explosions, or releases of waste or waste constituents, or changes the response necessary in an emergency, or
- The list of Duty Fire Chiefs (Emergency Coordinators) changes, or
- The list of emergency equipment changes, or
- Applicable regulations are revised.

EPD will coordinate the periodic review of the Contingency Plan, and the updated plan will be distributed to all appropriate programs/departments and external agencies.

2. RESPONSIBILITIES

This section presents the responsibilities of the Emergency Coordinator, WAA Operator, WAA Coordinator, EDO, EOG Analyst, support organizations, and the LLNL Fire Department.

2.1 Emergency Coordinator

The LLNL Fire Department Incident Commander fulfills the responsibilities of Emergency Coordinator, as required by state and federal regulations. The Incident Commander coordinates all emergency responses for large incidents.

The LLNL Fire Department is contacted for all large incidents. The first senior Fire Department Officer dispatched to, or present at, the incident site becomes the Incident Commander until relieved by a Duty Fire Chief. Three Battalion Chiefs rotate the responsibility of Duty Fire Chief on a shift schedule 24-hours a day.

The Incident Commander has the authority to commit LLNL resources and the capability to obtain outside resources needed to carry out this Contingency Plan. Some of these responsibilities can be delegated.

Table 2. Emergency Call List of Duty Fire Chiefs

Name and Title	Extension/ Pager	L-Code	Work Phone	Work Address	Home Phone	Home Address
Randall Bradley Fire Chief	37700/ 01800	L-388	(925) 423-1800 (office) (925) 918-1800 (cell)	7000 East Ave., Livermore, CA 94551	(209) 824-7077	Manteca, CA 95336
Wade Diebner Battalion Chief	37700/ 01810 or 01811	L-388	(925) 423-1811 (office) (925) 596-1811 (cell)	7000 East Ave., Livermore, CA 94551	(925) 606-6609	Livermore, CA 94550
Gary Linney Battalion Chief	37700/ 01810 or 01812	L-388	(925) 423-1812 (office) (925) 596-1812 (cell)	7000 East Ave., Livermore, CA 94551	(925) 449-6399	Livermore, CA 94550
James Watkins Battalion Chief	37700/ 01810 or 01813	L-388	(925) 423-1813 (office) (925) 596-1813 (cell)	7000 East Ave., Livermore, CA 94551	(209) 836-5081	Tracy, CA 95376
Mike McLaughlin Battalion Chief	37700/ 01810 or 01814	L-388	(925) 423-1814 (office) (925) 918-1814 (cell)	7000 East Ave., Livermore, CA 94551	(209) 588-0882	Sonoma, CA 95370

In an emergency, immediately notify the LLNL Emergency Dispatcher at extension 911 or dial (925) 447-6880 if calling from off-site. If paging from off-site, dial (925) 423-7705 and pager number. If using a handheld radio, use call sign MIKE.

The Incident Commander shall:

- Assess the emergency conditions and initiate onsite response activities.
- Identify the character, exact source, amount, and extent of released material with assistance from the EOG Analyst during normal working hours or the EDO during off-hours.
- Assess possible hazards to human health with assistance from the ES&H Team 1 Site 300 Industrial Hygienist and/or Health Physicist. Assess possible hazards to the environment with assistance from the EOG Analyst during normal working hours or the EDO during off-hours. If assessment indicates that evacuation of local areas may be advisable, the Incident Commander shall immediately notify appropriate local authorities and shall be available to help appropriate officials decide whether local areas should be evacuated.
- Ensure that all required notifications to outside agencies take place. Authority is delegated to the EOG Analyst during normal working hours or the EDO during off-hours to make notifications for environmental emergencies.
- Activate the Emergency Paging System to notify personnel in selected areas of LLNL Site 300 or the entire LLNL Site 300 population, if necessary. Initiate evacuation of personnel, if appropriate.
- Notify appropriate state or local agencies with designated response roles if their help is needed, or if material is released off-site.

- Provide on-scene operational control for life safety, rescue, fire control and extinction, spill control and containment, and property conservation and salvage.
- Stop all waste-handling processes and operations in the area to prevent the occurrence, recurrence, and spread of fire, explosions, and waste releases.
- Ensure that monitoring is performed for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment.
- Ensure that recovered wastes, contaminated soil, or run-off water (from fire fighting, sprinkler systems, broken water lines, etc.) are treated, stored, or disposed of in accordance with all applicable regulations.
- Ensure that waste that is incompatible with the released waste is not handled in the area of the release until cleanup is complete. Authority may be delegated to the EOG Analyst during normal working hours or the EDO during off-hours.
- Ensure that all emergency equipment is cleaned and restocked before operations are resumed.

2.2 WAA Operator

An operator who is trained and responsible for day to day management of wastes in a WAA and for handling small incidents is assigned to each WAA. The WAA Operators are listed in each site-specific plan. In the event of a small incident, the WAA Operator shall:

- Notify the WAA Coordinator of the incident.
- Assess conditions and make an initial evaluation.
- Safeguard personnel and visitors in the area of the WAA.
- Coordinate all response activities and measures.
- Commit and direct the resources needed to mitigate the incident.

During a large incident, the WAA Operator shall:

- Immediately contact the Alameda County Regional Emergency Communications Center by dialing extension 911 or call sign MIKE if using a handheld radio.
- Request the support of the ES&H Team 1 EOG Environmental Analyst during normal working hours, or the EDO during off hours.
- Ensure that the ES&H Team 1 Site 300 Deputy Team Leader and ES&H Team 1 Health & Safety (H&S) Technician are also notified of the incident. (The Site 300 Deputy Team Leader will notify the H&S Technician, if needed).
- Notify the WAA Coordinator of the incident.
- Assess conditions and make initial evaluations.
- Safeguard personnel and visitors in the area of the WAA.
- Initiate onsite response activities if safe to do so.

2.3 WAA Coordinator

A coordinator is assigned to each WAA. The WAA Coordinator oversees

operations performed by the WAA Operator and serves as the program/department contact for small and large incidents occurring in the WAA. The WAA Coordinators are listed in each site-specific plan. During a small or large incident the WAA Coordinator shall:

- Ensure that the Fire Department via the Alameda County Regional Emergency Communications Center or the CAS Operator is contacted immediately for large incidents.
- Contact the EOG Analyst and the ES&H Team 1 Site 300 Deputy Leader.
- Provide assistance as required by emergency response personnel.
- Ensure that all emergency equipment is cleaned and restocked before operations resume, if this responsibility is delegated by the Incident Commander.

2.4 Environmental Duty Officer

The EDO is responsible for assisting the Incident Commander in making decisions regarding environmental issues. Designated EPD personnel who are certified as EDOs rotate this responsibility and remain on call 24-hours a day, on a weekly basis. During off-hours, the EDO is the point contact for environmental issues and has the option of calling the EOG Analyst for assistance. During normal working hours, the EDO shall:

- Assist the EOG Analyst assigned to support the program/department that owns the WAA.
- Ensure the appropriate outside regulatory agencies are notified following EPD's Environmental Incident Notification and Reporting Procedure.
- During off-hours, the EDO shall assist the Incident Commander in making decisions regarding environmental issues. The EDO shall:
  - Identify the character, source, amount, and extent of released material.
  - Assess the possible hazards to the environment.
  - Ensure that waste that is incompatible with the released waste is not handled in the area of the release until cleanup is complete, if the responsibility is delegated by the Incident Commander.
  - Contact the appropriate outside regulatory agencies following EPD's Environmental Incident Notification and Reporting Procedure.

2.5 Environmental Operations Group Analyst

The EOG Analyst supports the program/department responsible for the WAA. During normal working hours, the EOG Analyst is the point contact for environmental issues. The EOG Analyst shall notify the EDO when an incident occurs in an area the EOG Analyst supports, and together they shall assess the possible hazards to the environment. During off-hours, the EOG Analyst supporting the program area may be called to assist the EDO.

During normal working hours the EOG Analyst shall:

- Identify the character, source, amount, and extent of released material.
- Assess the possible hazards to the environment.

- Ensure waste that is incompatible with the released waste is not handled in the affected area until cleanup is complete, if the responsibility is delegated by the Incident Commander.
- Assist the EDO in making regulatory agency reporting determinations, including the notification to applicable agencies that regulatory compliance has been achieved before operations resume at a WAA.

2.6 Support Organizations

2.6.1 Environment, Safety, and Health Team

The ES&H Team 1 Site 300 Deputy Leader is notified in the event of a fire or explosion, major earthquake, or waste release within a WAA. Each WAA has the support of ES&H Team 1; members of ES&H Team 1 may be called at any time to assess possible ES&H issues. ES&H Team 1 consists of technicians (see Section 2.6.2) as well as specialists in the following fields:

- Industrial Hygiene
- Industrial Safety
- Health Physics
- Environmental Protection
- Explosives Safety
- Fire Protection Engineering and Prevention
- Criticality Safety
- Occupational Medicine

2.6.2 Technician Support

Other support personnel include the H&S Technicians and RHWM Technicians. The H&S Technicians can assist in securing areas, monitoring the safety of the area and personnel, and cleanup operations. The RHWM Technicians can assist in sampling and cleanup operations.

2.6.3 Terrestrial and Atmospheric Monitoring and Modeling Group

The Terrestrial and Atmospheric Monitoring and Modeling (TAMM) Group of EPD supports and assists LLNL organizations in conducting environmental monitoring of air, soil, and vegetation.

2.6.4 Water Guidance and Monitoring Group

Water Guidance and Monitoring Group (WGMG) personnel assist LLNL organizations by monitoring various environmental media (e.g., ground water, storm water, and storm drainage systems) to assess the impact of an incident on the environment.

2.6.5 Radioactive and Hazardous Waste Management Division

RHWM has personnel and equipment available to support the LLNL Fire Department or program/department during an incident. RHWM may:

- Assist in sampling and cleanup operations.
- Assist in preparing the waste for offsite disposal.
- Provide spill response equipment as described in Section 5.3.1.
- Assist in control, containment, and decontamination. The Incident Commander may delegate this responsibility to RHWM, and supervise the control, containment, and decontamination work.

2.7 LLNL Fire Department

The LLNL Fire Department shall be contacted immediately via the Alameda County Regional Emergency Communications Center or the CAS Operator for large incidents. The LLNL Fire Department provides the first response and is responsible for invoking the incident command system. The LLNL Fire Department has the responsibility and authority as legally required to be in charge of site management for incidents, and to delegate authority to mitigate emergency situations. The LLNL Fire Department shall ensure the appropriate measures are taken to:

- Contain and control waste to protect personnel, the environment, and property from its effects.
- Provide technical and operational coordination to return the site of the incident to normal.

3. ARRANGEMENTS WITH LOCAL AUTHORITIES

LLNL has mutual aid agreements with several local authorities to provide assistance in the event of an emergency that cannot be handled by LLNL internal response measures. Through LLNL's participation in mutual aid agreements, virtually all emergency response organizations in the local region can be accessed. Primary local authorities that provide assistance through the Twin Valley (or East Zone) Mutual Aid Agreement are:

- California Department of Forestry
- City of Livermore/Pleasanton Fire Department
- Alameda County Sheriff's Office
- Alameda County Fire Department
- Valley Fire Protection District, San Ramon
- The Alameda County Health Care Services Agency
- Valley Care Medical Center
- Eden Medical Center
- Camp Parks Reserve Forces Training Area (RFTA)
- City of Livermore Police Department

LLNL participates in five additional agreements:

- Alameda County Fire Mutual Aid Agreement
- Alameda County Emergency Medical Services Agreement (ALCO-EMS)
- City of Tracy Mutual Aid Agreement
- California State Office of Emergency Services Agreement
- Alameda County Emergency Dispatch Consortium Mutual Aid Agreement

LLNL is also a signatory to a Memorandum of Understanding with the California Department of Forestry which allows automatic response upon request for wildland fires.

The LLNL Fire Department provides emergency medical care during emergencies and transports the ill or injured either directly off-site or to the LLNL Health Services facility for further medical evaluation and care. LLNL operates under the ALCO-EMS Emergency Medical Plan protocols. The plan identifies Valley Care Medical Center as the medical base hospital for the East Zone of Alameda. Highland Hospital is the trauma base hospital for Alameda County. Under ALCO-EMS protocol, patients may be transported to the closest appropriate receiving facility. Tracy-Sutter hospital in the City of Tracy, San Joaquin County, may receive such patients.

The ALCO-EMS plan will be activated if medical service needs resulting from an incident will overwhelm the resources of a single ALCO-EMS zone. Each base hospital will coordinate emergency response within its zone and between other zones. An emergency dispatch system [Alameda County Central Medical Emergency Dispatch (ALCO-CMED)] is in place to alert all hospitals in the plan. The LLNL Fire Department and Health Services Department have radio links with ALCO-CMED. ALCO-CMED is located in the LLNL Fire Department Dispatch Center and operated under the Alameda County Emergency Dispatch Consortium Mutual Aid Agreement. ALCO-CMED will send ambulances to the disaster site and maintain receiving hospital bed count status. San Joaquin County EMS resources may be accessed through San Joaquin County Dispatch, City of Stockton. Air transportation via helicopter may be used if the overall time for transport to a hospital is at least 20 minutes less than ground transportation. Other hospitals will cancel routine services to prepare to receive patients.

In the event of an emergency, requests for outside assistance will be channeled through the LLNL Emergency Notification System, and outside authorities will be contacted via telephone or radio.

Copies of all agreements are filed in the LLNL Emergency Management Division Office.

4. EMERGENCY CONTROL PROCEDURES

Response to an incident at a WAA is designed to be at a level appropriate to the incident. Small and large incidents are defined based on the event and the potential hazard to onsite personnel and offsite population. Guidelines for determining whether an incident is small or large are established in Section 1.2. The appropriate procedures to follow in the event of small and large incidents are outlined in this section.

4.1 LLNL Site 300 Sitewide Emergencies

LLNL sitewide emergencies are addressed by the LLNL Emergency Plan.

4.2 Emergency Situations

4.2.1 Fire or Explosion

If a fire or explosion occurs in a WAA, the incident is considered large, as described in Section 1.2. In WAAs that could possibly contain explosive materials, there should be no attempt to fight any fire and the area should be evacuated immediately in the event of fire. The fire must first be reported immediately to the LLNL Fire Department via the Alameda County Regional Emergency Communications Center by telephone or via the CAS Operator by handheld radio. The WAA Operator shall take the following actions in the event of a fire or explosion:

1. Dial extension 911 for the Alameda County Regional Emergency Communications Center, or use a handheld radio, call sign MIKE, to contact the CAS Operator.
2. Identify his/her name.
3. Give the location (including the fact that it is at Site 300) of the fire or explosion and any injured parties. Include WAA number, cross streets, and significant landmarks. If there is a fire at the facility and explosives are present, evacuate to a safe distance (at least 1,250 feet) and await the Fire Department.
4. Indicate the nature of the fire (i.e., what material is burning).
5. Give all other significant information that may help the LLNL Fire Department, including:
   - Size of the fire
   - Materials at risk
   - Potential involvement of waste and other hazardous substances
   - Nature of injuries.
6. Remain on the phone (if it is safe to do so) or standby on the radio to verify the information given to the Alameda County Regional Emergency Communications Center or the CAS Operator and receive further instructions.
7. Notify the WAA Coordinator.
8. Take appropriate actions to mitigate the emergency before the LLNL Fire Department arrives, including restricting access to the affected area and

giving emergency aid to the injured.
9. Standby or direct someone to meet the Fire Department and direct them to the incident.

If the WAA Operator is incapacitated, any cognizant individual at the WAA shall take the actions previously outlined in items 1 through 9 until the arrival of the Incident Commander.

An Assembly Point Leader, who is the local authority for supervising the emergency activities conducted in areas assigned to a specific Assembly Point, may also arrive at the area of the incident to perform specific tasks. The WAA Operator may perform these tasks before the Assembly Point Leader arrives. The Assembly Point Leader's responsibilities during a fire or explosion include:

1. Personnel accountability.
2. Search and rescue operations by Re-Entry/First-Aid Teams. Note: The Re-Entry/First Aid Team can accomplish the tasks previously listed in items 1 through 9.
3. Local first aid.
4. Transport of the injured.
5. Situation assessment/personnel accountability reporting.
6. Notify the Site 300 Manager/Emergency Director as soon as possible of personnel and facility status by dialing (925) 423-5600 or by using a handheld radio on the "Self-Help" talk group, call sign EOC CONTROL. If RHWM personnel report to another assembly point, their status should be conveyed to that assembly point leader.
7. Protection of facilities/personnel.

If the Assembly Point Leader is incapacitated, the most senior management individual at the Assembly Point shall assume the Assembly Point Leader's responsibilities previously listed in items 1 through 7 until the arrival of the Assembly Point Leader.

4.2.2 Earthquakes

Major earthquakes fall in the category of a large incident as defined in Section 1.2. However, the WAA Operator may take the following measures before the Incident Commander arrives:

1. Initiate the following on-site response activities:
   A. Assess conditions: check for fires, fire hazards, or waste releases at the WAA.
   B. Dial extension 911 to contact the Alameda County Regional Emergency Communications Center or use a handheld radio, call sign MIKE, to contact the CAS Operator if Fire Department response is necessary.
   C. Determine whether there has been damage to containers or storage areas, and cordon off the area if necessary.
   D. Check utility lines and equipment for damage. Shut off electrical power to equipment. Eliminate all potential ignition sources. Matches,

lighters, open-flame appliances, or electrical appliances must not be used until it is certain that there are no flammable vapors present.

E. Assist other employees and visitors in need, but do not move seriously injured persons unless they are in immediate danger of further injury.
F. If safe, stop the source of any spills and contain any spilled material.

The Assembly Point Leader will also arrive at the area of the incident to perform specific tasks. The WAA Operator may perform these tasks before the Assembly Point Leader arrives. The Assembly Point Leader's responsibilities during a major earthquake include:

G. Personnel accountability.
H. Search and rescue operations by Re-Entry/First-Aid Teams. Note: The Re-Entry/First Aid Team can accomplish the tasks previously listed in items A through F.
I. Local first aid.
J. Transport of the injured.
K. Situation assessment/personnel accountability reporting. Notify the Site 300 Manager/Emergency Director as soon as possible of personnel and facility status by dialing (925) 423-5600 or by handheld radio on the "Self-Help" talk group, call sign EOC CONTROL.
L. Protection of facilities/personnel.

2. If the WAA Operator is incapacitated, any cognizant individual at the WAA shall take the actions outlined above in items A through E until the arrival of the Incident Commander, and the most senior management individual at the Assembly Point shall assume the Assembly Point Leader's responsibilities previously listed in items G through L until the arrival of the Assembly Point Leader. Item F shall be performed by an individual who is knowledgeable of spill response procedures, and who is familiar with the types of wastes stored in the WAA.

3. All personnel and their visitors shall follow these general procedures:

A. If indoors during the earthquake, get under a table or desk in a corner away from windows or stand in a doorway.
B. If instructed to evacuate, go to the designated Assembly Point and follow the instructions of the Assembly Point Leader (LLNL Emergency Plan).
C. If outdoors during the earthquake, avoid high buildings, walls, power poles, power lines, and other objects that could fall, and move to an open area away from all hazards.
D. Avoid downed power lines or objects touching downed lines.
E. Exercise common sense; remain as calm as possible and follow instructions given over the administrative address system.

4.2.3 Power Outages

The normal operating hours of the WAA(s) are from 7:00 a.m. to 5:30 p.m., Monday through Thursday. Normal waste management operations in the

WAA(s) do not require power, and, therefore, power outages will not have a significant impact on their operation. However, if emergency lighting is needed for any reason, portable generators and floodlights are available from Plant Engineering Maintenance and Operations Division. (The generator is serviced and tested once a month, whether or not it is used. It is not explosion-proof, and must not be used near flammable or combustible vapors).

4.2.4 Waste Release Within the WAA

If a container holding waste spills, leaks, or otherwise releases its contents to the environment and there is no immediate threat to personnel safety, trained personnel must take immediate action to contain the release (follow spill response procedures outlined in Sections 4.2.4.1 and 4.2.4.2).

4.2.4.1 Procedures to Stop and Contain Waste in the Event of a Small Incident

When visual monitoring indicates that a release has occurred, trained personnel shall take the following steps:

1. Stop waste container handling operations.
2. Determine the source, type, and amount of leaking material.
3. If safe, eliminate the source of the release (e.g., stop leak, set container upright, or close valves).
4. Notify the WAA Coordinator or WAA Operator and EOG Analyst.
5. If safe, eliminate ignition sources.
6. Cordon off the release area to prevent access to the area.

Steps 7 through 11 shall be taken only if it is safe and must be carried out by at least two individuals who have been trained. Whenever possible, the area H&S Technician or the off-shift technician should be contacted to provide safety oversight and assistance in the cleanup of a spill.

7. Contain the spill using appropriate personal protective equipment (PPE) (see Appendix A), absorbent (see Appendices B and C), or by other appropriate means.
8. Clean up the spill.
9. Properly dispose of spent cleanup materials such as absorbents and rags; manage them as hazardous, radioactive, or mixed waste as appropriate.
10. Decontaminate response equipment (see Section 4.3.1), and restock spill response supplies before operations resume.
11. Resume normal operations after the area is inspected by the EOG Analyst, Facility Manager or WAA Coordinator, and the H&S Technician.

Note: If there is any uncertainty about safely managing the release, immediately call the Alameda County Regional Emergency Communications Center at extension 911 or use a handheld radio, call sign MIKE, to contact the CAS Operator.

4.2.4.2 Procedures to Stop and Contain Waste in the Event of a Large Incident

In the event of a large waste release, the WAA Operator shall implement the Contingency Plan as specified in Section 1.2 by calling the Alameda County Regional Emergency Communications Center at extension 911 or use a handheld radio, call sign MIKE, to contact the CAS Operator.

If a large waste release occurs during normal working hours, the WAA Operator must:

1. Stop waste container handling operations.
2. Initiate the following onsite response activities:
   A. Dial extension 911 to contact the Alameda County Regional Emergency Communications Center, or use a handheld radio, call sign MIKE, to contact the CAS Operator.
   B. Identify his/her name.
   C. Give the location of release and any injured parties. Include WAA number, cross streets, and significant landmarks.
   D. Indicate the nature of the release, if known (i.e., material identification, quantity, and extent of release).
   E. Remain on the phone (if it is safe to do so) to verify the information given to the LLNL Fire Department and receive further instructions.
   F. Request the LLNL Fire Department to contact the EOG Analyst during normal working hours or the EDO during off-hours, the ES&H Team Leader, and the on-duty H&S Technician.
3. Give emergency aid to the injured, if possible.
4. Notify the WAA Coordinator and EOG Analyst.

4.2.4.3 Removal of Liquids in Secondary Containment

All liquid waste containers are stored on secondary containment pallets to contain accidental releases. Liquid wastes may be hazardous, radioactive, mixed or nonhazardous, depending on the source of liquid. When liquids are observed in secondary containment, the source of the liquid must be determined. If the liquid is determined to be rainwater, then follow the procedures identified below for rainwater. However, the amount of rainwater collected can and should be kept to a minimum through proper preventive measures such as covering the waste containers and secondary containment pallets with plastic prior to the rainfall.

Liquids within secondary containment must be removed in a timely manner. Large volumes of liquid are pumped into appropriate containers, and small volumes of liquid are absorbed with cloth, paper rags or Dry Sorb material that is collected into appropriate containers. All liquids captured in berms are collected, sampled, and analyzed unless the source of a spill is readily traceable. For example, if the contents of a container are released in a berm, and the contents are known and are on record, waste sampling and analysis are not necessary. In addition, rainwater in nonhazardous retention tank berms is managed according to "Management of Retention Tank Systems" (Environment,

Safety and Health Manual, Document 32.2, Management of Retention Tank Systems, Editorial Update April 1, 2001). Contact the EOG Analyst for assistance.

The accumulated water from the first rain storm of the season is considered potentially contaminated with hazardous, radioactive, or mixed constituents and will be collected, sampled, and analyzed using the parameters and methods in **Table 3.**

The water will be considered appropriate for discharge to the ground or storm water collection system if the:

- Constituents in **Table 3** are not detected during analyses.
- pH of the liquid is 6.5 to 8.5.
- Screen for radioactive contaminants is less than 25 dpm/ml for wastes originating in Radioactive Material Management Areas (RMMAs).

If contaminants are detected in the rainwater or if the pH is outside the allowed range for discharge to ground, the accumulated rainwater must be sent to RHWM for disposal or discharged to the sanitary sewer system at the LLNL Main Site (with authorization from WGMG).

The analytical scheme described in **Table 3** will be used to characterize the rainwater annually after the first rain storm of the season, and after any spill of hazardous waste or material at the WAA.

Table 3. Rainwater Analysis Following First Rainstorm

Parameter/Constituent	Method
pH	9040
Normality	SM- P544
Total toxic organics	EPA 624 and 625
TTLC metals	6010
Flash point	1010
Oil and grease	1644
Total cyanide (CN)*	9010, SM 412
PCB*	8082
Gross alpha*	9310
Gross beta*	9310
Tritium*	7500-3HB

*Analysis required only if it is known or suspected that these contaminants are present in the waste stream.

The following evaluation schemes will be used to characterize accumulated rainwater from subsequent rain storms.

1. If the rainwater analysis from the first storm showed the rainwater could be discharged to ground or storm system, rainwater accumulated in the future can be evaluated using a series of visual checks (detailed below), detailed record reviews, a pH analysis, and for rainwater collected from RMMAs, an evaluation for radioactive contaminants. If the pH is 6.5 to 8.5 and all the

above checks are negative, the rainwater may be released to ground or storm drains. Visual observations must include, but are not limited to, checking:

- The containers within the secondary containment area for any sign of spills, leaks, or overfills (including drips, stains, wet spots, cracks, bulges, etc.) that might result in contaminants entering collected rainwater.
- The color, clarity, and odor of the liquid for any signs of contamination and for the presence of an oil sheen.
- Records to ensure that no spill has occurred since the last rainfall.

If there is an indication that there has been a release from a container, or if hazardous or radioactive constituents are present, spill response procedures must be initiated immediately. If the results of the subsequent visual checks are inconclusive or if any of the above criteria cannot be met, the liquid must be pumped into appropriate containers, then sampled, and analyzed for parameters discussed in **Table 3**.

2. If the accumulated rainwater from the first rain storm is nonhazardous but does not meet the criteria for release to ground or the storm water collection system, subsequent secondary containment water will be collected and sampled. These samples must be analyzed for the constituents in **Table 4** using approved methods, or any other methods approved by the Livermore Water Reclamation Plant (LWRP). If the results from the analytical tests show contaminant concentrations below LWRP discharge limits and there is a signed sewer release authorization issued by WGMG, rainwater may be discharged to the sanitary sewer at the LLNL Main Site.

3. If the analytical data indicate that the rainwater does not meet discharge criteria to the ground or storm drains, the liquids will be transferred. Non-hazardous, non-sewerable liquids may be stored or shipped offsite. Hazardous liquids will be transferred to an onsite LLNL-authorized facility to be treated and/or temporarily stored, and/or shipped offsite to a permitted TSDF for appropriate management.

Table 4. Rainwater Analysis Following Subsequent Rainstorms

Parameter/Constituent	Approved Method
pH	9040
Purgeable halocarbons/aromatics	8260 or 8021 (CES Methods)
TTLC metals	6010
Total cyanide (CN)*	9010, SM 412
Oil and grease**	1664 (CES Method) or 9070
PCB*	8082
Gross alpha*	P540 (CES Method) or 9310
Gross beta*	P541 (CES Method) or 9310
Tritium*	P542 (CES Method) or 7500-3HB

*Analysis required only if it is known or suspected that these contaminants are present in the waste stream.
**Analysis required only if an oil sheen is present on the water.

The WAA Operator must record rainwater discharges. The record must include:

- Date of discharge.
- Approximate volume of rainwater discharged.
- Any observations.
- Name and signature of the person performing the rainwater inspection and discharge.
- Name and signature of the inspector's supervisor.

Records must be maintained for a minimum of three years and be made available for review upon request by EPD or regulatory agency personnel.

4.2.4.4 Removal of Released Waste Solids

If hazardous or mixed solid waste is released, the waste will be repackaged and left in the WAA or transferred to the permitted onsite DTSC authorized facility for future shipment offsite to a permitted TSDF.

4.2.4.5 Waste-Handling Equipment Failure

The only pieces of equipment that may be operated at any time in a WAA are a pallet jack, a forklift, a hydraulic drum handler, or a drum dolly. As a result, there are only a few means by which equipment failure could have an impact on a WAA. If the pallet jack, forklift, hydraulic drum handler, or drum dolly damages a container within the WAA, the incident shall be handled as described in Section 4.2.4. If the forklift or hydraulic drum handler is damaged and releases mechanical fluids such as oil or fuel, the operator shall turn off the equipment to minimize fluid loss. The incident shall be handled as a small incident, as previously described. In either situation, the equipment shall be decontaminated (see Section 4.3.1) if necessary, and repaired or replaced, as needed.

4.3 Decontamination

4.3.1 WAA Decontamination Activities

In the event of a small incident, all equipment, protective clothing, and other materials used during the spill response, including the WAA, must be evaluated to determine if they are contaminated with hazardous, radioactive, or mixed wastes. All nondisposable items will be decontaminated by rinsing the equipment in a container with an appropriate solution (e.g., water, soap, or solvent). Rinsate waste from decontamination operations will be managed appropriately, pending analysis. Analytical test results will determine final disposition of the rinsate. All disposable items will be handled as hazardous, radioactive, or mixed waste unless test results indicate that the waste is not subject to regulatory requirements.

4.3.2 LLNL Fire Department Decontamination Activities

The LLNL Fire Department manages all decontamination efforts following large

incidents. Their decontamination procedures are discussed in "Tactical Plan 1612," LLNL Fire Department Policies and Procedures.

4.4 Notification to DOE and/or Regulatory Agencies

When a release occurs, EPD personnel (the EOG Analyst during normal working hours or the EDO during off-hours) must be notified immediately. The EDO will inform the Laboratory Emergency Duty Officer, LLNL Occurrence Reporting Office, and the appropriate program/department of required reporting to federal, state, and local agencies. EPD personnel will then notify environmental regulatory agencies, as necessary (see **Table 5** for regulatory agency phone contact list), following EPD's Environmental Incident Notification and Reporting Procedure.

Table 5. Regulatory Agency Phone Contact List

Agency	Phone Number
San Joaquin County Office of Emergency Services	(209) 468-3969
California Office of Emergency Services	(800) 852-7550
Department of Toxic Substances Control, Berkeley Office	(510) 540-3739
EPA Region IX Office, Emergency Hotline	(415) 947-4400

The EDO will also assist the program/department in determining whether the Department of Energy (DOE) must be notified. If the incident is reportable to DOE under the occurrence reporting requirements set forth in DOE Order 232.1, program/department personnel must verbally notify the LLNL Occurrence Reporting Office of the incident and write the required occurrence reports. The EOG Analyst may assist the program/department with compiling occurrence report information.

5. EMERGENCY EQUIPMENT

The following emergency/safety equipment and information are available at or near the WAA(s) as appropriate:

- Fire extinguisher.
- Emergency spill kit including hand tools, absorbent material, and clean, empty containers to receive waste.
- PPE including gloves, safety glasses, aprons, boots, coveralls, and face shields.
- Personnel decontamination equipment including emergency eyewash and deluge shower where liquid wastes are stored.
- Internal and external communication equipment, such as telephones.
- A Contingency Plan (a copy of the General Plan and the appropriate site-specific plan).

Specific emergency/safety equipment for each WAA is listed in the site-specific plan for the individual WAA. Spill kit supplies and emergency equipment are listed in **Table D-3** and **Table D-4** of **Appendix D** for the specific WAA.

Locations of the emergency equipment and spill kits are shown in **Figure D-2** of **Appendix D** for each WAA.

5.1 Communications Systems

WAAs are small enough that personnel can use verbal or hand signals to communicate with others, when present, in an emergency. Telephones are readily available at the WAA(s) or at buildings near the WAA(s). Notification of emergencies and requests for outside assistance are channeled through the Alameda County Regional Emergency Communications Center at extension 911 or through requests made to the CAS Operator if using a handheld radio. The Alameda County Regional Emergency Communications Center can contact outside authorities and obtain assistance via telephone or radio. In addition, all Hazards Control and EPD operations personnel wear radio pagers and are available in the event of any incident. Internal notification of personnel can be accomplished through the sitewide building page system, and all talk groups on the handheld radios if an evacuation is necessary.

5.2 Fire Suppression Systems

5.2.1 Fire Extinguishers

Fire extinguishers are manually operated, portable devices that will discharge an extinguishing agent when properly activated. They are used to control a fire during the time between its discovery and the arrival of the LLNL Fire Department. Fire extinguishers are inspected monthly and serviced on an annual basis. The location and types of fire extinguishers for the WAA(s) are listed in the **Table D-4** in the site-specific plans. Only trained personnel may use fire extinguishers.

5.3 Response Equipment

Several categories of emergency response equipment are available at LLNL Site 300. They include spill response equipment, response vehicles, and heavy equipment.

5.3.1 Spill Response Equipment

Emergency spill kits can be accessed from the WAA(s). These kits contain all necessary equipment needed to contain a small spill (see **Tables D-3** and **D-4** of the site-specific plans).

The LLNL Fire Department maintains or has access to a mobile supply of equipment required to mitigate diverse emergencies; these can be used in the event of a large incident. The Special Services Unit (at Fire Station 1, Building 323 LLNL Main Site) is a hazardous materials response vehicle operated by the LLNL Fire Department. It contains spill kits, absorbents, encapsulating hazardous materials suits, self-contained breathing apparatus, decontamination equipment, Haz-Cat test kits, and hazardous materials reference information.

5.3.2 Response Vehicles and Heavy Equipment

In case of a fire, explosion, or large release of waste, fire-fighting equipment, containment and emergency equipment are available for use. All LLNL Fire Department vehicles are equipped with radios on LLNL channels, Twin Valley Mutual Aid channels, and the State Mutual Aid channel. The LLNL Fire Department unit at Site 300 has the following vehicles:

- Engine 1863 is a type I/III pumper with a 1,250 gallons per minute (GPM) pump and 500 gallon water tank, self contained breathing apparatus, rescue tools, a 6 kilowatt (KW) electric generator, auxiliary pump, advanced life support (ALS) medical supplies, radiation meters, combustible gas indicator, and a standard complement of fire fighting equipment.
- Engine 1862 is a type III pumper with four wheel drive, 1,000 GPM pump, 500 gallon water tank, self contained breathing apparatus, rescue tools, 1.25 KW generator, auxiliary pump, and a standard complement of fire fighting equipment.
- Patrol 1882 is a four wheel drive truck with a 100 GPM pump and 200 gallon water tank.
- Medic 1890 is an ambulance with ALS supplies capable of carrying 3 patients. It has the U.S. Department of Transportation (DOT) standard complement of equipment.

A variety of heavy equipment is available from Plant Engineering for use in an emergency including air compressors, cranes, cutting torches, forklifts, generators, pumps, scrapers, and bulldozers.

All emergency equipment is maintained on a regular basis to ensure that it is operational at all times. The water trucks are kept full of fuel and water for preparedness. Preventative maintenance checks are performed by the automotive fleet maintenance crew according to the recommended factory schedule.

5.4 Decontamination Equipment

The LLNL Fire Department maintains decontamination supplies for personnel and/or equipment. In addition, RHWM maintains equipment that is available to decontaminate areas that were in contact with released waste. This equipment includes pumps, vacuums (a wet/dry vacuum and a vacuum fitted with a high-efficiency particulate air [HEPA] filter), absorbent, shovels, and brooms. All equipment is inspected monthly.

6. EVACUATION PLAN

6.1 Evacuation Notification of Personnel

All WAAs are small enough to allow evacuation by voice command. After evacuation, the WAA(s) shall be cordoned off to prevent access by other personnel. If evacuation of the immediate surrounding area is necessary the Incident Commander, through the Site 300 Manager, shall request the Site 300 Communications Attendant to use the building page system to notify personnel. Information on the nature of the event would also be broadcast over all radio talk groups. In the event of a large incident that requires site-wide evacuation, the Incident Commander or the Site 300 Manager would direct the Site 300 Communications Attendant and the CAS Operator to announce notification over the site-wide administrative pager system and all radio talk groups to notify personnel. Evacuation routes for the WAA(s) and surrounding areas are shown in **Figure D-3** of the site-specific plans.

6.1.1 LLNL Site 300 Sitewide Evacuation Plan

If evacuation of personnel from all or part of Site 300 is necessary because of a major emergency, the Protective Force Division will implement actions to control evacuating personnel, protect the onsite emergency scene, and coordinate activities with outside police organizations. The Protective Force Division will initiate one of the operational responses described in the LLNL Emergency Plan.

An event requiring evacuation could be caused by an onsite or offsite emergency such as an earthquake, fire, explosion, or major toxic or radioactive material release. The Incident Commander can implement area or sitewide evacuation procedures if necessary. The evacuation routes and assembly points are specific to each WAA and can be found in the site-specific plans, **Appendix D**, Section D-5.

6.2 Evacuation Routes and Assembly Points

All WAAs are maintained with a minimum exit aisle space of 36 inches, which allows adequate space to evacuate the WAA(s) quickly, if necessary. The evacuation routes and assembly points are specific to each WAA and can be found in the site-specific plans, **Appendix D**, Section D5.

7. REFERENCES

1. Emergency Plan, Lawrence Livermore National Laboratory, Livermore, CA, (Revised 2003, UCRL-MA-113311 Rev 6).
2. Tactical Plan 1612, LLNL Fire Department Policies and Procedures, Vol. 1, Lawrence Livermore National Laboratory, Livermore, CA (Revised 1996).
3. California Code of Regulations, Title 22, Division 4.5, Chapter 15.
4. Hazardous Waste Control, Law California Health and Safety Code, Division 20, Chapter 6.5.
5. U.S. Environmental Protection Agency, Code of Federal Regulations, Title 40
6. Environmental Incident Notification and Reporting Procedure, Vol. 1, Operations and Regulatory Affairs Division, Environmental Protection Department, Lawrence Livermore National Laboratory, (June 16, 1993, UCRL-AR-105193).
7. Environment, Safety and Health Manual, Document 32.2, Management of Retention Tank Systems, Editorial Update April 1, 2001.

APPENDIX A

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES

Table A-1. Personal Protective Equipment Guidelines*

Waste Category	Examples of Waste	Gloves	Protective Clothing	Respirator (see note)
Acid waste	Mineral acid (sulfuric acid, hydrochloric acid, hydrobromic acid); organic acid	Silvershield or Safety-4-H gloves under neoprene or nitrile	Full-body, chemically resistant, protective coveralls (Chemrel or equivalent) and latex or neoprene boots, or PVC** or polyethylene booties	Full-face, air-purifying respirator with GME-H cartridges***
	Chromic acid	Silvershield or Safety-4-H gloves under neoprene or nitrile	Full-body, chemically resistant, protective coveralls (Chemrel or equivalent) and latex or neoprene boots, or PVC** or polyethylene booties	Full-face, air-purifying respirator with GME-H cartridges***
	Perchloric acid	Call LLNL Fire Department at extension 911, or use call sign MIKE if using a handheld radio.		
****	Hydrofluoric acid	Call LLNL Fire Department at extension 911, or use call sign MIKE if using a handheld radio.		
Aqueous waste	Spent photo chemical, rinse waters, spent plating solutions, machine coolants	Neoprene or nitrile	Polyethylene-coated full-body Tyvek coveralls or full-body, chemically resistant, protective coveralls (Chemrel or equivalent) and latex or neoprene boots, or PVC** or polyethylene booties	Full-face, air-purifying respirator with GME-H cartridges***
Caustic waste	Sodium hydroxide, potassium hydroxide, calcium hydroxide	Silvershield or Safety-4-H gloves under neoprene or nitrile	Full-body, chemically resistant, protective coveralls (Chemrel or equivalent) and latex or neoprene boots, or PVC** or polyethylene booties	Full-face air-purifying respirator with GME-H cartridges***
	Ammonia	Silvershield or Safety-4-H gloves under neoprene or nitrile	Full-body, chemically resistant, protective coveralls (Chemrel or equivalent) and latex or neoprene boots, or PVC** or polyethylene booties	Full-face air-purifying respirator with ammonia cartridge

* *This equipment is available at the LLNL Main Site and/or Site 300, and not necessarily available at each WAA. Refer to Appendix D of the site-specific plans to determine availability of equipment. Contact the Industrial Hygienist prior to initiating cleanup to verify the adequacy of equipment and required PPE for a specific spill.*

** *Polyvinyl chloride.*

*** *Note: Personnel who intend to use a respirator must first be medically certified and fit-tested. Respirators are only issued after an evaluation by an Industrial Hygienist or Health Physicist.*

**** *If HF comes in contact with the skin or eyes, flush with water for a minimum of 15 minutes, rub calcium gluconate directly on affected skin areas, and immediately contact Health Services or dial 911, or (925) 447-6880 if calling from off-site. If using a handheld radio, contact the Central Alarm Services using call sign MIKE.*

Table A-1 Personal Protective Equipment Guidelines* (Continued)

Waste Category	Examples of Waste	Gloves	Protective Clothing	Respirator (see note)
Flammable liquid waste	Gasoline, acetone, toluene, xylene, ethanol	Silvershield or Safety-4-H gloves under neo-prene or nitrile	Full-body, chemically resistant, protective coveralls (Chemrel or equivalent) and latex or neoprene boots, or PVC** or polyethylene booties	Full-face air-purifying respirator with GME-H cartridges***
Combustible solid waste	Sodium, lithium, finely divided aluminum, and metal hydrides	Call LLNL Fire Department at extension 911, or use call sign MIKE if using a handheld radio.		
PCB waste	PCB contaminated oil, transformer fluid, capacitor fluid	Silvershield or Safety-4-H gloves under neo-prene or nitrile	Full-body, chemically resistant, protective coveralls (Saranex or equivalent) and latex or neoprene boots, or PVC** or polyethylene booties	Full-face air-purifying respirator with GME-H cartridges***
Strong oxidizer waste	Chromic acid, nitric acid (above 40%), perchloric acid (above 40%), nitrates, perchlorates, chlorates, chlorine, chlorites, peroxides, and permanganates	Chemical specific selection required. To be determined by an Industrial Hygienist. Contact the ES&H Team 1 Deputy Leader.		
Water reactives DO NOT USE WATER	Lithium hydride, sodium metal, potassium metal, uranium turnings, and acetyl chlorides	Call LLNL Fire Department at extension 911, or use call sign MIKE if using a handheld radio.		
Mixed waste	Mixture of hazardous and radioactive waste	Chemical and radioactive specific selection required. To be determined by a Health Physicist and Industrial Hygienist. Contact the ES&H Team 1 Deputy Leader.		
Radioactive Waste	Natural or depleted uranium, plutonium	Radioactive specific selection required. To be determined by a Health Physicist and Industrial Hygienist. Contact the ES&H Team 1 Deputy Leader.		

* *This equipment is available at the LLNL Main Site and/or Site 300, and not necessarily available at each WAA. Refer to Appendix D of the site-specific plans to determine availability of equipment. Contact the Industrial Hygienist prior to initiating cleanup to verify the adequacy of equipment and required PPE for a specific spill.*

** *Polyvinyl chloride.*

*** *Note: Personnel who intend to use a respirator must first be medically certified and fit-tested. Respirators are only issued after an evaluation by an Industrial Hygienist or Health Physicist.*

**** *If HF comes in contact with the skin or eyes, flush with water for a minimum of 15 minutes, rub calcium gluconate directly on affected skin areas, and immediately contact Health Services or dial 911, or (925) 447-6880 if calling from off-site. If using a handheld radio, contact the Central Alarm Services using call sign MIKE.*

APPENDIX B

EQUIPMENT TO CONTAIN AND ABSORB SPILLS

Table B-1. Equipment to Contain and Absorb Spills*

Waste Category	Type of Equipment	Material	Additional Equipment
**Acid waste	Absorbent socks	Polyethylene pulp (if compatible)	Polypropylene shovels, polyethylene bags
	Absorbent (loose)	Silicates (Floor Dry or Dry Sorb: diatomaceous earth or equivalent) except for hydrofluoric acid	Brooms (chemically resistant) dust pan (chemically resistant) Caution tape pH paper
	Acid neutralizer/ absorbent	Magnesium oxide, sodium bicarbonate, Neutrasorb, Kolor-Safe acid, or equivalent	
Aqueous waste	Absorbent socks	Polyethylene pulp	Polypropylene shovels, polyethylene bags
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	Brooms (chemically resistant) dust pan (chemically resistant) caution tape
Caustic waste	Absorbent socks	Polyethylene pulp	Polypropylene shovels, polyethylene bags
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	Brooms (chemically resistant) dust pan (chemically resistant) caution tape, pH paper
	Caustic neutralizer	Spill-x-C, Neutracit, Kolor-Safe base, or equivalent	
Flammable liquid waste	Absorbent socks	Polyethylene pulp	Polypropylene shovels, polyethylene bags
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	Brooms (chemically resistant), dust pan (chemically resistant) caution tape
	Solvent absorbent	Spill-x-S, Solusorb, or equivalent	
Flammable solid waste	Call LLNL Fire Department at extension 911, or use call sign MIKE if using a handheld radio.		
PCB waste	Absorbent socks	Polyethylene pulp	Polypropylene shovels, polyethylene bags
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	Brooms (chemically resistant) dust pan (chemically resistant), caution tape
	Detergent	Powerclean 151 or equivalent	

* *This equipment is available at the LLNL Main Site and/or Site 300, and is not necessarily available at each WAA. Refer to Appendix D of the site-specific plans to determine availability of equipment. Contact the Industrial Hygienist prior to initiating cleanup to verify the adequacy of equipment and required PPE for a specific spill.*

** *If HF comes in contact with the skin or eyes, flush with water for a minimum of 15 minutes, rub calcium gluconate directly on affected skin areas, and immediately contact Health Services or dial 911, or dial (925) 447-6880 if calling from off-site, or use call sign MIKE if using a handheld radio.*

Table B-1. (Continued)

Waste Category	Type of Equipment	Material	Additional Equipment
Strong oxidizer waste	Absorbent socks	Polyethylene pulp	Polypropylene shovels, polyethylene bags
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	Brooms (chemically resistant) dust pan (chemically resistant) caution tape, pH paper
Water Reactives DO NOT USE WATER	Absorbent socks	Polyethylene pulp	Call LLNL Fire Department at extension 911, or use call sign MIKE if using a handheld radio.
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	
Mixed waste	Use equipment for the specific hazardous waste constituent(s) if low-level mixed radioactivity. If high-level mixed radioactivity, contact a Health Physicist.		
Radioactive waste	Use absorbent socks or material if low-level radioactivity. If high-level radioactivity, contact a Health Physicist.		

APPENDIX C

WASTE ABSORPTION AND NEUTRALIZATION PROCEDURES

Table C-1. Waste Absorption and Neutralization Procedures*

Waste Category	Procedure to Absorb and/or Neutralize**
Acid waste	Contain the spill by surrounding it or by diking the perimeter with scoops of loose absorbent material compatible with the substance spilled. Begin at the side(s) where release flows toward drains or other conduits to the environment. Next, cover the spill with loose, compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. An acid neutralizing absorbent may be substituted, if neutralization is desired. Carefully stir the absorbent-covered spill with a shovel. The mixture will change color when the acid is neutralized. Very small spills may be contained and absorbed solely with an absorbent sock. Use a shovel to scoop up the loose absorbent into an appropriate container. A chemically resistant broom and dustpan may be used to sweep up absorbent residue. Use wetted absorbent towels or pads to clean surface area until it tests neutral with pH paper. Manage all absorbent material as hazardous waste. If HF comes in contact with the skin or eyes, flush with water for a minimum of 15 minutes, rub calcium gluconate directly on effected skin areas, and immediately contact Health Services or dial 911 or (925) 447-6880 if calling from off-site, or use call sign MIKE if using a handheld radio.
Aqueous waste	Contain the spill by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance spilled. Begin at the side(s) where release flows toward drains or other conduits to the environment. Next, cover the spill with loose, compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. Carefully stir the absorbent-covered spill with a shovel. Very small spills may be contained and absorbed solely with an absorbent sock. Use a shovel to scoop up the loose absorbent. A chemically resistant broom and dustpan may be used to sweep up absorbent residue. Use wetted absorbent towels or pads to clean surface. Manage all absorbent material as hazardous waste.
Caustic waste	Contain the spill by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance spilled. Begin at the side(s) where release flows toward drains or other conduits to the environment. Next, cover the spill with loose, compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. A caustic neutralizing absorbent may be substituted, if neutralization is desired. Carefully stir the absorbent-covered spill with a shovel. The mixture will change color when the caustic is neutralized. Very small spills may be contained and absorbed solely with an absorbent sock. Use a shovel to scoop up the loose absorbent. A chemically resistant broom and dustpan may be used to sweep up absorbent residue. Use wetted absorbent towels or pads to clean surface area until it tests neutral with pH paper. Manage all absorbent material as hazardous waste.

* *These wastes are not necessarily present at each WAA. Refer to Appendix D for the site-specific plans to determine the wastes present.*

** *Contact the WAA Coordinator and the EOG Analyst or EDO prior to cleanup of the released waste.*

Table C-1. (Continued)

Waste Category	Procedure to Absorb and/or Neutralize**
Flammable liquid waste	Contain the spill by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance spilled. Begin at the side(s) where release flows toward drains or other conduits to the environment. Next, cover the spill with loose, compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. Carefully stir the absorbent-covered spill with a non-sparking shovel. Very small spills may be contained and absorbed solely with an absorbent sock. Use a nonsparking shovel to scoop up the loose absorbent. A chemically resistant broom and dustpan may be used to sweep up absorbent residue. Use wetted absorbent towels or pads to clean surface. Seal contaminated clothing and absorbent material in a vapor-tight container. Manage all absorbent material as hazardous waste.
Combustible solid waste	Call LLNL Fire Department at extension 911, or (925) 447-6880 if calling from off-site, or use call sign MIKE if using a handheld radio.
PCB waste	Contain oily spill by surrounding it with absorbent socks. These are easier to clean up than loose absorbent. Next, cover the spill with absorbent socks, working from the perimeter of the spill inward toward the center. Loose absorbent may be used for this step, if desired. Stir the pile of loose absorbent carefully. When the PCB is totally absorbed, carefully place the socks into a disposal bag or directly into an appropriate waste container. If applicable, shovel loose absorbent into a waste container. Solid surfaces must be double washed or rinsed with kerosene or an appropriate detergent (an equivalent solvent in which PCBs are at least 5% soluble by weight). Keep area cordoned off until swipe samples are collected and analyzed, and the area is approved for reentry.
Acid oxidizer waste	Contain the spill by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance spilled. Begin at the side(s) where release flows toward drains or other conduits to the environment. Next, cover the spill with loose, compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. An acid-neutralizing absorbent may be substituted, if neutralization is desired. Carefully stir the absorbent-covered spill with a shovel. The mixture will change color when the acid is neutralized. Very small spills may be contained and absorbed solely with an absorbent sock. Use a shovel to scoop up the loose absorbent. A chemically resistant broom and dustpan may be used to sweep up absorbent residue. Use wetted absorbent towels or pads to clean surface area until it tests neutral with pH paper. Manage all absorbent material as hazardous waste.

* *These wastes are not necessarily present at each WAA. Refer to Appendix D for the site-specific plans to determine the wastes present.*

** *Contact the WAA Coordinator and the EOG Analyst or EDO prior to cleanup of the released waste.*

Table C-1. (Continued)

Waste Category	Procedure to Absorb and/or Neutralize**
Other oxidizer waste	Contain the spill by surrounding it or by diking the perimeter with scoops of loose absorbent material compatible with the substance spilled. Begin at the side(s) where release flows toward drains or other conduits to the environment. Next, cover the spill with loose, compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. Carefully stir the absorbent-covered spill with a shovel. Very small spills may be contained and absorbed solely with an absorbent sock. Use a shovel to scoop up the loose absorbent. A chemically resistant broom and dustpan may be used to sweep up absorbent residue. Use a wetted absorbent pad to clean surface. Manage all absorbent material as hazardous waste.
Water reactives	If it is safe to do so, place absorbent around storm drain or sewer openings. Call LLNL Fire Department at extension 911, or (925) 447-6880 if calling from off-site, or use call sign MIKE if using a handheld radio.
Mixed waste	Follow the Waste Absorption and Neutralization Procedures for the hazardous waste constituent in the mixed waste.
Radioactive waste	Contain the spill by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance spilled. Begin at the side(s) where release flows toward drains or other conduits to the environment. Next, cover the spill with loose, compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. Carefully stir the absorbent-covered spill with a shovel. Very small spills may be contained and absorbed solely with an absorbent sock. Use a shovel to scoop up the loose absorbent. A broom and dustpan may be used to sweep up absorbent residue. Use a wetted absorbent pad to clean surface. Manage all absorbent material as radioactive waste.

* *These wastes are not necessarily present at each WAA. Refer to Appendix D for the site-specific plans to determine the wastes present.*

** *Contact the WAA Coordinator and the EOG Analyst or EDO prior to cleanup of the released waste.*

APPENDIX D-1

BUILDING 883 NORTH
WASTE ACCUMULATION AREA

APPENDIX D-1

BUILDING 883 NORTH WASTE ACCUMULATION AREA

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APPENDIX D-1

BUILDING 883 NORTH WASTE ACCUMULATION AREA

D1. INTRODUCTION

This appendix is designed to provide information specific to the Building 883 North Waste Accumulation Area (B-883N WAA), a temporary waste storage area. This appendix is not designed to be used as a sole source of information. All general information that is not specific to the B-883N WAA is included in the Contingency Plan for Site 300 Waste Accumulation Area(s), dated TBD, and should be referenced.

D1.1 General Information

Facility Name	Building 883 North Waste Accumulation Area
Department/Program	Environmental Protection Department, Radioactive and Hazardous Waste Management Division
Site Operator	Regents, University of California Lawrence Livermore National Laboratory (LLNL) P.O. Box 808 Livermore, CA 94551
EPA ID No.	CA2890090002
Location	Corral Hallow Road, seven miles west of Tracy, CA, in the General Services Area (GSA) of Site 300.
LLNL Contact	Rob Tageson Waste Accumulation Area Coordinator Lawrence Livermore National Laboratory P.O. Box 808 (L-874) Livermore, CA 94551 Phone: (925) 423-5509
Owner	U.S. Department of Energy (DOE) DOE National Nuclear Security Administration (NNSA) Livermore Site Office P.O. Box 808, L-293 Livermore, CA 94551-0808
DOE Contact	Dan Nakahara Assistant Manager Environmental Stewardship Division U.S. Department of Energy NNSA/Livermore Site Office Phone: (925) 423-8394

D2. WAA DESCRIPTION

D2.1 General Information

The Building 883N WAA is located in the north side of Building 883 in the General Service Area of the LLNL Site 300 (see **Figure D-1**). Hazardous and mixed waste generated throughout Site 300 may be stored at the Building 883 North WAA for up to 90 days until transferred to a permitted Treatment, Storage or Disposal Facility (TSDF). Radioactive waste may also be stored at the WAA until transferred to an approved radioactive waste disposal facility.

D2.2 Physical Description

The Building 883N WAA consists of the north side of Building 883, and the interior of a 25 feet x 40 feet area outside of the building on the west side. Waste generated throughout Site 300 will be stored at the Building 883N WAA.

The Building 883N WAA is a covered area, approximately 40 feet by 54 feet, surrounded by a locked chain link fence. The Building 883N WAA is constructed with an epoxy coated concrete floor and berm. In addition, a grated secondary containment vault is located in the southwest corner of the WAA. Access to the inside of the B-883N WAA is through a locked gate located on the north side of the WAA. The exterior portion of the WAA is constructed of an asphalt floor and chain barrier. It is designed to contain solid waste only.

D2.3 Description of Waste Handled

Table D-1 lists the waste types typically stored in the Building 883N WAA. This list is intended to alert personnel to the potential hazards in the WAA, but each situation should be evaluated based on the actual material involved. Waste stored in the Building 883N WAA may be contained in bags, paint cans, buckets, drums, boxes, roll-offs, or other containers ranging from less then one gallon, to 1000 gallon portable tanks, to 40 cubic yard roll-offs.

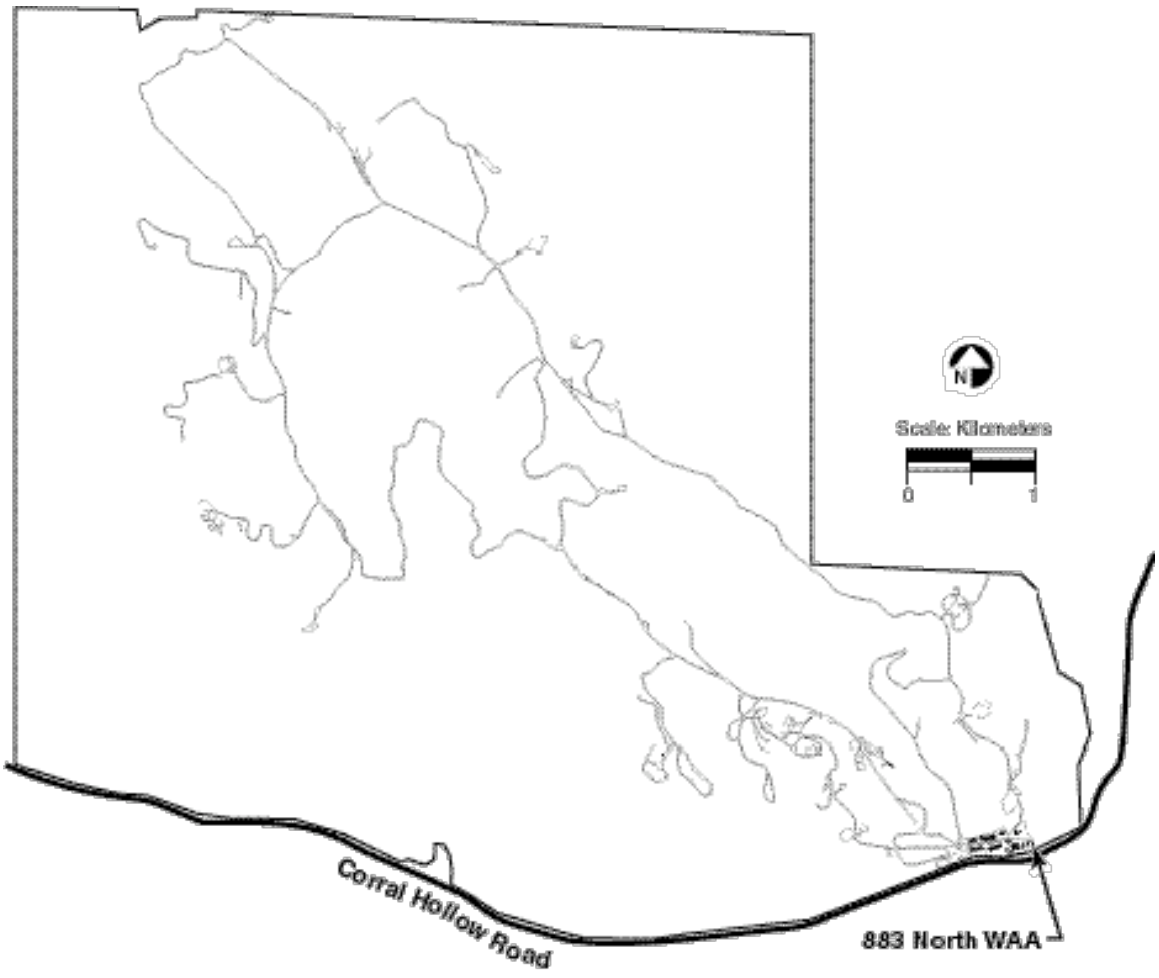

Figure D-1. Location of the Building 883 North Waste Accumulation Area

Table D-1. Typical Waste Stored in the Building 883 North WAA

Acids (liquid)
Asbestos
Combustible liquids
Compressed gases
Flammable liquids
Flammable solids
Halogenated and non-halogenated solvents
Lab packs
Laboratory debris (solid)
Mercury and mercury-contaminated waste
Miscellaneous chemical waste and contaminated debris
Mixed waste (liquid/solid waste containing both hazardous and radioactive constituents)
Oils (liquid/solid)
Oxidizers (liquid/solid)
Paints (liquid/solid)
PCB waste (liquid/solid)
Photochemicals (liquid)
Poisons
Radioactive waste (liquid/solid)
Reactive materials
Wastewaters (liquid)

D3. RESPONSIBILITIES

The WAA Coordinator, WAA Operator, ES&H Team 1 Site 300 Deputy Leader, EOG Analyst, RHWM Technician, and Site 300 H&S Technician are responsible for providing information and assistance in the event of an emergency. ES&H Team 1 is the support team for the Building 883N WAA. If additional support members are needed, the ES&H Team 1 Site 300 Deputy Leader or EOG Analyst will notify those members. Program contacts and ES&H Team 1 contacts are listed in Table D-2.

Table D-2. Program Contacts and ES&H Team 1 Contacts

Contact	Name	Phone	Pager
WAA Coordinator	Rob Tageson	423-5509	01730
WAA Operator	Ken Newman	424-2852	01033
ES&H Team 1 Leader	Jim Mecozzi	423-3762	04024
ES&H Team 1 Site 300 Deputy Leader	Jerry Bardecker	423-6150	04349
EOG Analyst	Dawn Chase	423-9136 or 423-6684	04257
RHWM Technician	Ken Newman	424-2852	01033
ES&H Technician	Colleen Carter	422-0229	04197

In an emergency, immediately notify the LLNL Emergency Dispatcher at extension 911 or dial (925) 447-6880 if calling from off-site. If paging from off-site, dial (925) 423-7705 and pager number. If using a handheld radio, contact the Central Alarm Services using call sign MIKE.

D4. EMERGENCY EQUIPMENT

D4.1 Emergency Equipment Available at the WAA

The Building 883N WAA has spill kit supplies, fire extinguishers, and personal protective equipment. The location, type, and quantity of spill kit supplies required for the operation of the Building 883N WAA are listed in **Table D-3**. Other emergency equipment required in this area is listed in **Table D-4**. The location of emergency equipment is shown in **Figure D-2**.

D4.2 Communication Equipment

A telephone is located on the exterior of the Building 883N WAA, near the northeast corner of Building 883 (see **Figure D-2**).

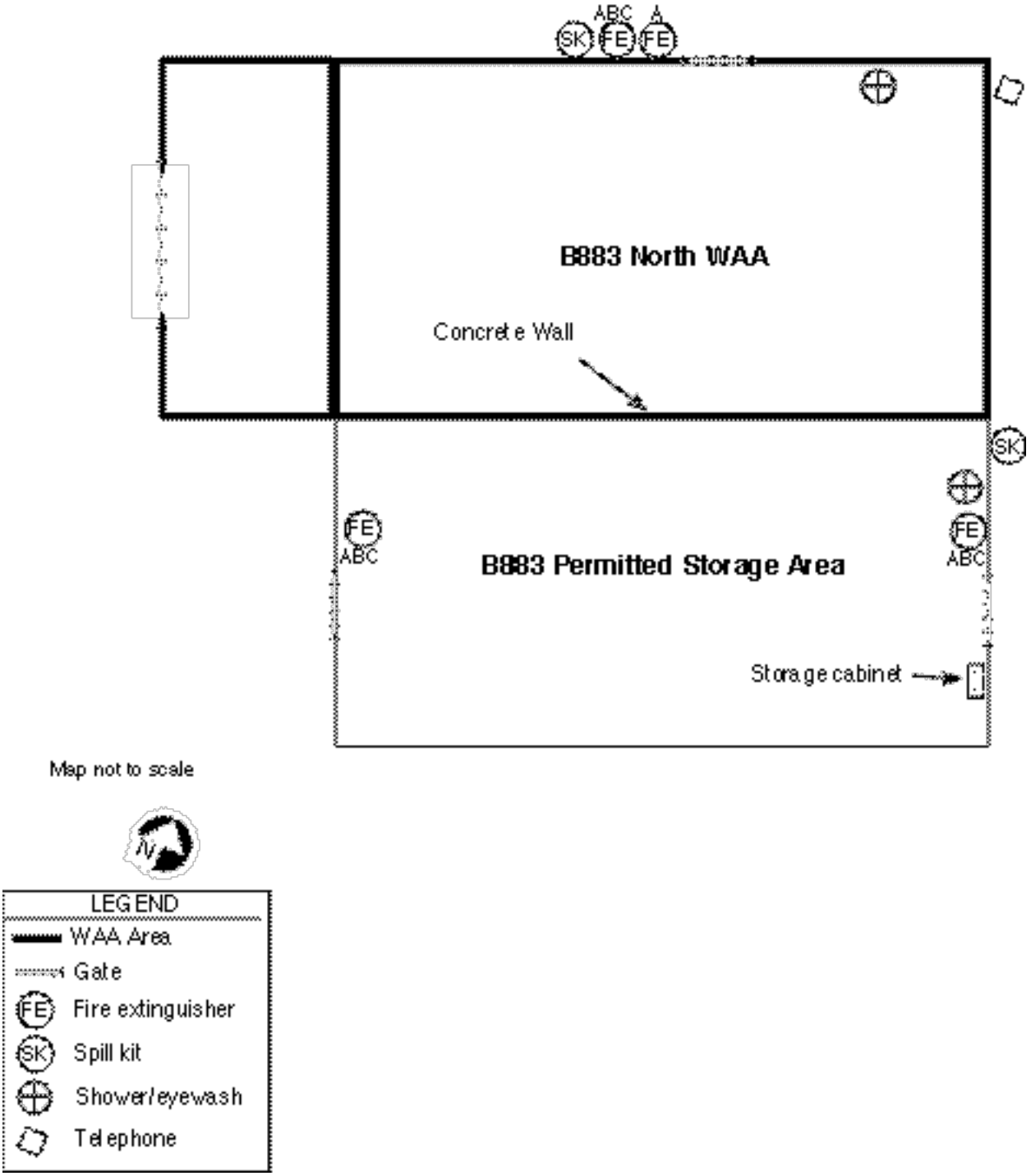

Figure D-2. Building 883N WAA

Table D-3. Spill Kit Supplies

Supplies	Quantity	Use	Location
Face shield	2 each	Protect against chemical splash.	Spill kit cabinet, north side of WAA
Goggles	2 pair	Protect against chemical splash.	Spill kit cabinet, north side of WAA
Booties	8 pairs	See Appendix A (Personal Protective Equipment") in the Contingency Plan for Site 300 Waste Accumulation Area(s).	Spill kit cabinet, north side of WAA
Tyvek coveralls	6 pairs	See Appendix A (Personal Protective Equipment") in the Contingency Plan for Site 300 Waste Accumulation Area(s).	Spill kit cabinet, north side of WAA
Neoprene gloves	4 pairs	See Appendix A (Personal Protective Equipment") in the Contingency Plan for Site 300 Waste Accumulation Area(s).	Spill kit cabinet, north side of WAA
Leather gloves	4 pairs	Protect against sharp or rough surfaces.	Spill kit cabinet, north side of WAA
Rubber aprons	4 each	Protect against chemical splash.	Spill kit cabinet, north side of WAA
Tie aprons	20 each	Protect against chemical splash.	Spill kit cabinet, north side of WAA
Bicarbonate of soda	1 bag	To neutralize acid spills.	Spill kit cabinet, north side of WAA
Kay drys	4 boxes	Absorb water, solvents and oils.	Spill kit cabinet, north side of WAA
Push broom	2 each	Sweep absorbent material for ultimate placement in waste containers.	Spill kit cabinet, north side of WAA
Drysorb	4 bags	Contain and absorb spilled acids, bases, solvents, oils, hydraulic fluids, PCBs, organic solvents, and coolants. ***NOT FOR USE ON HYDROFLUORIC ACID***	Spill kit cabinet, north side of WAA
Shovel	1 each	Provides for cleanup of absorbent and solids.	Spill kit cabinet, north side of WAA
Dust pan	2 each	To be used in conjunction with brooms for cleanup of absorbent or solids.	Spill kit cabinet, north side of WAA
Barrel pump	1 each	To transfer material from one drum to another.	East side of WAA

Drum uprighter	1 each	Tool to provide leverage to lift drums that have been tipped over—to move from horizontal to standing position.	East side of WAA
Sample bottles (500 ml poly bottles and 8 oz glass squat jars)	2 of each	Collecting samples.	Spill kit cabinet, north side of WAA
pH paper	2 packages	Quickly determine if material is acidic or alkaline.	Spill kit cabinet, north side of WAA
Extension cord, 50 ft.	1 each	Provide electrical power for equipment.	Spill kit cabinet, north side of WAA
Vinyl tape	2 rolls	Seal protective suits, gloves, and containers.	Spill kit cabinet, north side of WAA
Filament tape	2 rolls	Seal protective suits, gloves, and containers.	Spill kit cabinet, north side of WAA
Ratchet wrench with 15/16" socket	1 each	Used to remove bolts from rings on ring-top drum.	Spill kit cabinet, north side of WAA
55-gallon plastic bags	6 each	Line drums and contain contaminated absorbent or other solid waste.	Spill kit cabinet, north side of WAA
Bung wrench	1 each	Used for tightening and loosening drum fittings.	Spill kit cabinet, north side of WAA
Caution tape	1 roll	Alerts workers and bystanders of hazardous areas or dangerous conditions.	Spill kit cabinet, north side of WAA
Flashlight	1 each	Provides emergency lighting in areas of low visibility.	Spill kit cabinet, north side of WAA

Table D-4. Emergency Equipment

Equipment	Quantity	Use	Location
Eyewash	1 each	Flush eyes for 15 minutes.	Northeast corner of WAA
Deluge Shower	1 each	Flush exposed area for 15 minutes.	Northeast corner of WAA
Type ABC fire extinguisher	1 each	Extinguish or control small electrical, wood, or flammable liquid fires. LLNL Fire Department must be called if a fire occurs.	North exterior of WAA
Type A fire extinguisher	1 each	Extinguish or control small paper or wood fires. LLNL Fire Department must be called if a fire occurs.	North exterior of WAA

D5. EVACUATION ROUTES AND ASSEMBLY POINT

Evacuation from the Building 883N WAA would be through the north exit gate, to the assembly point at Building 879 to the northwest of the Building 883N WAA. See **Figure D-3** for the location of the evacuation routes and assembly point.

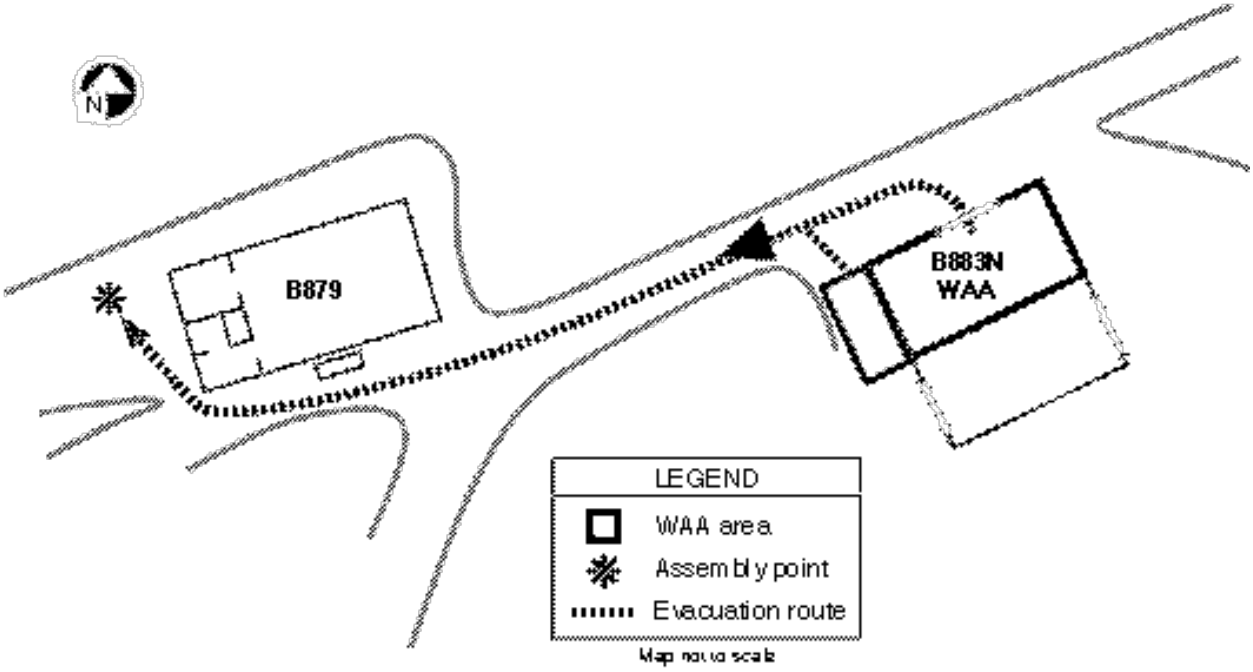

Figure D-3. Building 883N WAA Evacuation Route